My name is Robert Grizzard. I am an amateur radio operator, holding callsign KG7YY. I wish to comment upon the Notice of Proposed Rulemaking presently before this Commission concerning Access Broadband Internet access over Power Line, or Access BPL.

The very first thing that is necessary is for the data bursts that are the cause for concern amongst the manifold wireless user communities that will bear the burden of interference from BPL to carry some identifying characteristic that will allow any interference to be tracked to the source within minutes of its advent. To this end, I propose that during low-load periods null data bursts shall be interposed with actual data bursts so that the data bursts shall form Morse code characters at speeds of 10 to 20 words per minute that shall identify the utility furnishing the transmission lines and shall identify a means of contacting the offending utility and shall, optionally, include an encoded designator for which specific facility is generating the interference at no more than ten minute intervals, and during high-load periods or in those systems that do not use "bursty" data that no-signal intervals be interposed to the same end. I have experienced BPL interference locally and would not be aware of who to contact had I not seen the utility's vehicles in the installation area.

Often, amateur radio operators are blamed for interference to consumer electronics when the fault lies solely within the interfered with device. In the present instance, interference bids fair to be several orders of magnitude worse due to the reciprocal nature of antennas; i.e., those that radiate well will also receive signals well. In addition, the problems that will arise will be the result of a device responding to a signal appearing on its operating frequency rather than a device improperly responding to a signal that does not appear on its operating frequency. In the past, radio frequency interference has been the cause of suits at law for recovery of damages and attempted local legislation to prevent interference. (This Commission has, wisely, preempted the legislative field. The Commission should, if possible, preempt the civil field as well.) In an attempt to inform any potential customers of the limitations of this technology I propose that any recipient of BPL service for Internet connectivity shall be required, as a condition of obtaining that service, to contractually acknowledge that BPL service is provided under the terms that the equipment, protocols, and service shall not interfere with any licensed or authorized radio service and that the equipment must accept interference from any licensed or authorized radio service and that such contractual acknowledgment shall be renewed at such times as payment for the service is made, and that any failure to acknowledge the terms may be grounds for termination of the service. Further, in an attempt to forestall any vigilante efforts to shut down an interfering amateur station through vandalism, the recipient shall be required to acknowledge having been made aware of the fact that any attempt, whether successful or not, to damage a radio station licensed in any radio service is a violation of the Communications Act of 1934, as amended.

I wish now to address some of the specific questions this Commission has posed in the present NPRM. In paragraph 33, the Commission states, "Accordingly, in order to better ensure protection of existing radio services, we are proposing to continue to apply the existing Part 15 emission limits for carrier current systems to Access BPL systems". In paragraph 34, the Commission states, "Furthermore, all unlicensed devices operating under Part 15 are subject to the condition that they not cause harmful interference and that they cease operation if they do cause such interference". In practice, Access BPL operators are deeming the radiated emission limits at Title 47 Code of Federal Regulations Part 15.209 to be the the "non-interference level" without regard for whether

harmful interference is occurring. A local amateur radio operator here in Cedar Rapids, Iowa, resides within the Access BPL test site currently being run by Alliant Energy and has complained about three unusable HF amateur radio service bands. Alliant has measured the radiated emissions, found them within the maximum permissible levels at 47 CFR 15.209, and refused to reduce the field strength below that already measured despite the mandatory requirements of 47 CFR 15.5(b) to not cause any harmful interference. Meanwhile, as of April 30, 2004, the 12 and 17 meter amateur radio service bands are seriously degraded by what sounds like OFDM signals though it could also be a classic Sin X/X power distribution from a single pulsed carrier that spans the band. Given that the Access BPL operators are wrongly using the limits at 47 CFR 209(a) to sidestep their responsibility as defined at 47 CFR 15.5(b), I offer the counterproposal that these limits be reduced for Access BPL by at least a factor of 10; i.e., for equipments operating on frequencies from 3 to 30 MHz the limit shall be reduced from 30 uV/M at a distance of 30 Meters to 3 uV/M at a distance of 30 Meters.

This Commission's comments in paragraph 35 that "We therefore would expect that, in practice, many amateurs already orient their antennas to minimize the reception of emissions from nearby electric power lines" is chilling in that it places the burden of interference mitigation upon the innocent party, not the interfereing party.

In paragraph 36, the Commission states, "We also disagree with ARRL and others that suggest that interference caused to amateur and other radio operations by Access BPL systems complying with our Part 15 limits will be widespread". The local Cedar Rapids installation that I have cited above spans approximately 1/2 mile along Glass Road, yet BPL interference is plainly audible for 8/10 mile along the road. Empirical evidence shows that the Commission's disagreement is not rooted in fact.

In paragraph 37, the Commission asks, "[S]hould we require Access BPL system [sic] to coordinate with public safety agencies that use the HF band for state-wide public safety communications?" In answer, I say, "Yes, absolutely. In addition, operators of Access BPL systems should be required to coordinate with public safety agencies that use frequencies between 25 and 50 MHz for local area communications, shore stations that use the HF band to communicate with ships at sea, aeronautical stations that use the HF band to communicate with transoceanic airplane flights, military and naval stations that use the HF band to communicate with ships, aircraft, and ground troops, and space research stations that use sensitive receivers to receive signals from extraterrestrial bodies".

In paragraph 38, the Commission states, in total, "Accordingly, we are proposing to maintain the existing Part 15 radiated emission limits for Access BPL systems and devices. In addition, we are proposing to exempt Access BPL systems from the existing conducted emission limits of Section 15.107(c).96 Because Access BPL systems are installed on power lines that can carry 1,000 volts to 40,000 volts, conducted emission measurements are very difficult to measure, and present safety hazards in connecting test equipment to these lines. We do not believe that this exemption would have any impact on interference potential since Access BPL would still be required to comply with our radiated emissions rules. We seek comment on these proposals. We further seek comment on whether Access BPL would in some instances operate in the AM broadcast band (from 535 to 1705 kHz), and whether specific conducted requirements are needed in such situations". I concur in part and disagree in part. I concur with the Commission's proposal to exempt Access BPL hardware from conducted emissions testing. I have already voiced my disagreement with the Commission's proposal to maintain existing

radiated emissions limits for Access BPL, cited my grounds for that disagreement, and made my counterproposal. Access BPL in the AM broadcast band (535 - 1705 kHz) would have the effect of converting many regional broadcasters to locals. This involuntary conversion would not be in the public interest.

In paragraph 39, the Commission states, "[W]e wish to emphasize that Access BPL would also operate under our Part 15 non-interference conditions. Thus, operations must cease if harmful interference to licensed services is caused". This is not occurring today. Access BPL system operators are running their systems to the maximum permissible field strengths and refusing to take actions to mitigate the resultant interference.

In paragraph 40, the Commission states, "First, we are proposing to require that Access BPL systems and devices incorporate capabilities that would allow the operator to modify system performance to mitigate or avoid harmful interference to radio services. Such adaptive interference mitigation techniques would include, for example, the capability to reduce power levels on a dynamic or remote controlled basis, and the ability to include or exclude specific operating frequencies or bands". As far as it goes this is good; however, there remains the issue of a pulsed RF carrier spreading out per the mathematical function Sin X/X. It is not possible to eliminate interference at one specific frequency within the frequency span except by shifting the carrier frequency or pulse width, and this will result inexorably in shifting the interference to yet another frequency. OFDM, which the Commission cites in paragraph 41, merely allows multiple OFDM carriers to coexist in the same spectrum, not OFDM and narrowband signals. Since the Commission will not allow amateur radio operators to use OFDM techniques in the HF spectrum, amateur radio operators will continue to be cursed by interference from Access BPL systems.

In paragraph 42, the Commission states, "We seek comment on these proposals [to require that Access BPL devices incorporate a shut-down feature that would deactivate units found to cause harmful interference], and invite suggestions for alternative approaches". Setting aside the alternate approach of the Japanese solution to the interference problem posed by Access BPL in their markets, which was a ban on the technology, requiring Access BPL system operators to operate absolutely under a "non-interference" policy or with significantly reduced field strengths, with remote shutdown capability, and significant fines for violations would go a long way toward mitigating interference.

Further in paragraph 42, the Commission asks, "We seek comment on the appropriate period of time that we should allow for BPL systems to come into compliance with any new requirements that we may adopt pursuant to this rule making proceeding. We further seek comment on whether Access BPL systems currently deployed should be required to be brought into compliance with the new rules, and if so, what period of time should be afforded for them to come into compliance". In times past, the Commission has required immediate compliance with certain rules where the rule was a case of ameliorating interference. I propose that any Access BPL system or portion thereof brought on-line after the enactment date of any new rules arising from this proceeding should be compliant when activated, with no exceptions, and that any Access BPL system or portion thereof currently on-line and active shall be brought into compliance no more than 45 calendar days after the effective date and time of any new rule, except that any such system shall be made compliant with any reduced field strength requirement arising from this proceeding within seven calendar days from the effective date and time of any rules arising from this proceeding, with a mandatory requirement that any system noncompliant in any aspect shall be shut

off completely no later than one hour after expiration of the grace period, seven or 45 days, and not turned back on until such a time as it is brought into complete compliance.

In paragraph 43, the Commission asks, "Finally, we propose to subject Access BPL systems to a notification requirement similar to the notification requirements in our rules for power line carrier (PLC) systems. Under this requirement, an Access BPL system operator would submit information on its system to an industry-operated entity. The objective of the proposed notification would be to establish a publicly accessible database for Access BPL information to ensure that the location of Access BPL systems and their operating characteristics are identified if harmful interference occurs and to facilitate interference mitigation and avoidance measures. We propose that this notification includes information on the location of the installation, the type of modulation used and the frequency bands of operation. We seek input on these proposals. We also request comment and suggestions on the appropriate industry-operated entity that we should select to receive the notifications and maintain the Access BPL data base. We also seek comment on other approaches for making this information available. For example, would it more reasonable to allow each Access BPL operator to maintain a database of its own rather than require a more centralized data base?. Commenting parties are requested to submit information on the benefits of such approaches. We further seek input on any resulting burdens that the proposed notification requirement may place on entities operating Access BPL systems, and any impact of a notification system on the availability of customer data as well as how any concerns regarding the proprietary nature of that data can be addressed". My initial proposal, that the very signal's nature be modified by imposing a Morse code modulation upon the carrier, dovetails quite nicely with the requirement to maintain a publicly accessible database. The encoded location would aid the Access BPL system operator in identifying the specific installation that was problematic and the contact information would aid the affected party in informing the interfering utility of its failure to meet its responsibilities under 47 CFR 15. Encoding the interfering installation would allow its specifics to be kept sub rosa, should that be desired. I do not believe that each entity operating any Access BPL system or systems should be allowed to maintain its own database, as that means that any long-range interference received as a result of the NTIA-identified 10 to 20 degree takeoff angle (an angle which, incidentally, is prime for long-distance contacts via HF bands) would not be resolved because the local Access BPL system operator would not be in control of the interfering system.

Respectfully submitted,
Robert V. Grizzard